



AMENDMENT UNDER 37 C.F.R. § 1.116
U.S. Patent Application No.: 09/986,698

Attorney Docket No.: A8182

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): A method for extending a capability of a handheld device capable of independent operation, the method comprising:
 - detecting a helper device that provides a resource;
 - requesting access to the resource from the helper device;
 - transferring data to the helper device from the handheld device, if the helper device grants access to the resource;
 - using the resource to process the data transferred from the handheld device at the helper device;
 - wherein the resource is not adequately provided by the independent operation of the handheld device
 - wherein if the helper device denies access to the resource, detecting another helper device that provides the resource.

2. deleted

3. (previously presented): The method of claim 1, wherein using the resource to process the data transferred from the handheld device is controlled by the handheld device.

4. (previously presented): The method of claim 1, further comprising:
sending an interface description from the helper device to the handheld device;
using the interface description to construct and display a control interface at the handheld device;
transferring a user interaction with the control interface from the handheld device to the helper device, and
interpreting the user interaction based on the resource;
wherein the handheld device operates the helper device based on the user interaction, and
wherein adding a new resource or modifying an existing resource does not require modifying the handheld device.

5. (previously presented): The method of claim 1, further comprising sending a status report of the operation of the resource on the data from the helper device to the handheld device,
wherein the handheld device performs an action based on the status report.

6. (currently amended): A method for extending a capability of a handheld device capable of independent operation, the method comprising:
detecting a plurality of helper devices, each helper device providing at least one resource and controlling access to the resource;
determining the helper devices that provide a first resource needed to extend the capability of the handheld device;

issuing a request for access to the first resource to each of the helper devices providing the first resource, each of the helper devices providing the first resource queuing the request if the first resource is temporarily unavailable, wherein when the first resource becomes available to a first helper device having queued the request, the first helper device grants the handheld device access to the first resource and any requests for the first resource queued in the other helper devices are ignored;

transferring data to the first helper device from the handheld device, if the first helper device grants access to the first resource;

using the first resource to process the data transferred from the handheld device at the first helper device;

sending an interface description from the first helper device to the handheld device;
constructing and displaying a control interface from the interface description at the handheld device;

processing a user interaction with the control interface at the handheld device, and
operating the first helper device based on the user interaction,

wherein the first resource is not adequately provided by the independent operation of the handheld device,

wherein if a communication between the handheld device and the first helper device is broken before the handheld device has completed use of the first resource, detecting another helper device providing the first resource.

7. deleted

8. (previously presented): The method of claim 6, further comprising controlling the processing of the data, transferred from the handheld device to the first helper device, by the handheld device.

9. (canceled).

10. (previously presented): The method of claim 6, further comprising:
sending a status report of the processing of the data using the first resource, from the first helper device to the handheld device, and
performing an action by the handheld device based on the status report.

11. (currently amended): A system for extending a capability of a mobile device, the system comprising:

a handheld device capable of independent operation; and
a plurality of helper devices, each helper device providing an extension service and controlling access to the at least one extension service;

wherein the handheld device communicates with each of the helper devices to determine if any of the helper devices is capable of providing a selected extension service to the handheld device;

wherein the handheld device issues a request for the selected extension service to each of the helper devices providing the selected extension service, and each of the helper devices

providing the selected extension service queue the request if the selected extension service is temporarily unavailable;

wherein when the selected extension service becomes available to a first helper device having queued the request, the first helper device grants the handheld device access to the selected extension service, and all other queued requests for the selected extension service, in other helper devices, are ignored;

wherein if each of the helper devices providing the selected extension service denies the handheld device access to the selected extension service, the handheld device terminates communication with each of the helper devices providing the selected extension service;

wherein the handheld device transfers data to the first helper device, if the first helper device grants access to the selected extension service;

wherein the first helper device uses the selected extension service to process the data transferred from the handheld device to the first helper device ;

wherein the first helper device sends an interface description to the handheld device;

wherein the handheld device constructs and displays a control interface using the interface description;

wherein the handheld device transfers a user interaction with the control interface to the first helper device,

wherein the first helper device interprets the user interaction based on the selected extension service;

wherein the handheld device operates the first helper device based on the user interaction, and

wherein the selected extension service is not adequately provided by the independent operation of the handheld device, and

wherein a new extension service can be added or an existing extension service can be modified without modifying the handheld device

wherein if a communication between the handheld device and the first helper device is broken before the handheld device has completed use of the selected extension service, another helper device providing the selected extension service is detected.

12. (previously presented): The system of claim 11, wherein the operation of the selected extension service on the data is controlled by the handheld device.

13. (canceled).

14. (previously presented): The system of claim 11, wherein the interface description is specified in a markup language.

15. (previously presented): The system of claim 11, further comprising a storage device which stores service information for the extension service provided by each of the helper devices.

16. (previously presented): The system of claim 11, further comprising an access database which stores authentication data associated with the handheld device,

wherein each of the helper devices providing the selected extension service control access to the selected extension service using the authentication data.

17. (previously presented): The system of claim 11, wherein the data transferred from the handheld device consists of a URL.

18. (previously presented): The system of claim 11, wherein the data transferred from the handheld device comprises a URL.

19. (previously presented): The system of claim 11, wherein the handheld device includes a client for communicating with each of the helper devices, the client being activated on demand.

20. (previously presented): The system of claim 11, wherein the handheld device includes a client for communicating with each of the helper devices, the client running as a daemon.

21. (previously presented): The system of claim 11, wherein the first helper device sends a status report of the operation of the selected extension service on the data to the handheld device, and the handheld device performs an action based on the status report.

22. (currently amended): A system for extending a capability of a handheld device capable of independent operation, the system comprising:

- first means in the handheld device for accessing a resource of a local device;
- second means in the local device for controlling access to the resource; and
- third means in at least one of the handheld device and the local device for communicating between the first means and the second means;

wherein the first means uses the third means to determine if the second means is capable of providing the resource to the first means;

wherein the first means uses the third means to issue a request for the resource from the second means, the second means queuing the request if the resource is temporarily unavailable;

wherein if the resource becomes available to the second means, the second means grants the first means access to the resource, and any other queued requests for the resource issued by the first means to other local devices are ignored;

wherein the first means uses the third means to transfer data to the second means, if the second means grants the first means access to the resource;

wherein the second means uses the resource to process the data;

wherein the second means uses the third means to send an interface description to the first means;

wherein the first means constructs and displays a control interface using the interface description;

wherein the first means uses the third means to transfer a user interaction with the control interface to the second means;

wherein the second means interprets the user interaction based on the resource;

wherein the first means uses the third means to operate the second means based on the user interaction; and

wherein the resource is not adequately provided by the independent operation of the first means

wherein if access to the resource is denied another device that provides the access is detected.

23. (previously presented): The system of claim 22, wherein the operation of the resource on the data is controlled by the first means using the third means.

24. (canceled).

25. (previously presented): The system of claim 22, wherein the interface description is specified in a markup language.

26. (previously presented): The system of claim 22, wherein the request for the resource includes capability information associated with the first means, and

wherein the capability information is used by the second means to determine the appropriate interface description to send to the first means.

27. (previously presented): The system of claim 22, wherein the request for the resource from the first means includes the type of the data to be transferred and the size of the data.

28. (previously presented): The system of claim 22, wherein the data transferred from the first means consists of a URL.

29. (previously presented): The system of claim 22, wherein the data transferred from the first means comprises a URL.

30. (previously presented): The system of claim 22, wherein the first means includes a client for accessing the resource, the client being activated on demand.

31. (previously presented): The system of claim 22, wherein the first means includes a client for accessing the resource, the client running as a daemon.

32. (previously presented): The system of claim 22, wherein the second means uses the third means to send a status report of the operation of the resource on the data to the first means, and the first means performs an action based on the status report.